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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E.

Branch: ES – Cluster Elective

Course Code: 19EC6CE1CV

Course: Computer Vision

Semester: VI

Duration: 3 hrs.

Max Marks: 100

Date: 19.07.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

			UNIT - I	CO	PO	Marks
Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.	1	a)	What is clustering? Classify the various clustering techniques.	CO1	PO1	8
		b)	What is the importance of risk function in classification strategy? Suggest a solution to minimize the risk of a two class classifier and multi class classifiers.	CO2	PO2	8
		c)	What are the advantages and drawbacks of K means Algorithm?	CO1	PO1	4
			UNIT - II			
	2	a)	Prove that the auto correlation surface is a factor dependent on Image gradient. Bring out the significance of addressing the Aperture problem during feature detection.	CO1	PO1	8
		b)	How can we make image descriptors more invariant preserving discriminability between different Patches? Explain the different descriptors in detail.	CO2	PO2	8
		c)	What are the drawbacks of SIFT? Suggest a method to overcome the same.	CO1	PO1	4
			OR			
	3	a)	Explain the following: a) Active Contours b) Elastic Nets c) Deformable Surfaces d) Fourier Descriptors	-	-	8
		b)	“The object of interest needs to be tracked from frame to frame as it deforms and evolves” Identify and explain an appropriate technique to perform the function.	CO2	PO2	8
		c)	What is the importance of Splines and Shape Priors?	CO1	PO1	4

UNIT - III					
4	a)	What is serial imaging? Explain the principle of working of secondary ion mass spectrometer.	CO1	PO1	8
	b)	Define Stereo matching. What are the different approaches for matching stereo pairs? What are the drawbacks of stereo pairs?	CO2	PO2	8
	c)	Identify a suitable device which uses a beam of heavy ions to erode a layer of atoms from the specimen surface.	CO2	PO2	4
UNIT - IV					
5	a)	What is interpolation? Explain interpolation between planes of pixels.	-	-	8
	b)	Explain ray tracing? What are the variables available for ray tracing?	-	-	8
	c)	What are the various display modes to understand the surface information?	CO1	PO1	4
OR					
6	a)	Explain the characteristics of biometric traits. What are the figure of merits in which the accuracy can be expressed as?	CO2	PO2	8
	b)	Explain ink-less finger print scanner. What are the different technologies involved in livescan image acquisition?	CO2	PO2	8
	c)	What are the advantages and disadvantages of face recognition systems?	CO2	PO2	4
UNIT - V					
7	a)	Explain the different terms associated with the digital signature.	CO1	PO1	8
	b)	What is Augmented Reality? Brief the characteristics of the AR environment.	CO1	PO1	8
	c)	What are the various display devices used in AR?	CO1	PO1	4
